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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CRAWLEY, KEITH L

ART UNIT	PAPER NUMBER
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4193

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/569,307	Applicant(s) DESTURA ET AL.	
	Examiner KEITH CRAWLEY	Art Unit 4193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/21/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/21/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: photoconductive element 80 (pg. 15, line 8, in reference to figs. 8 and 9). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (pg. 9, line 27). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6-9, and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Young et al. (US 7,271,409).

Regarding claim 1, Young discloses an active matrix display device (abstract) comprising a plurality of pixels arranged in a row and column array (col. 3, line 53-54, also col.3, line 66), each pixel comprising a pixel electrode (col. 4, line 60-61, also fig. 3, elements 23 and 21) to which data voltages can be supplied by an associated data conductor via a respective thin film transistor (col. 4, line 1-3, see fig. 1, elements T2 and 160)) wherein at least a proportion of the pixels each further comprise a body (fig. 5, conductive barrier material 240) which electrically connects the associated pixel electrode to another electrode in response to touch-input to the pixel (see fig. 5, col. 7, line 7-20, as pressure is applied spacing between electrode 423 and conductive barrier material changes causing a reduction in resistance across material between electrodes, see also col. 6, line 48-51, sensing array may have a “short-circuit touch input”), said

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connection being detectable via the associated data conductor (col. 6, line 56-60, pixel array and sensor array use same matrix addressing circuitry).

Regarding claim 2, Young discloses a device according to claim 1, further comprising a common electrode (fig. 5, element 423) spaced from and overlying the array of pixel electrodes operable to create an electrical potential between itself and each pixel electrode (col. 7, line 14-19), wherein each of said bodies electrically connects the associated pixel electrode to said common electrode in response to touch-input to the pixel (same rationale as claim 1).

Regarding claim 3, Young discloses a device according to claim 1, wherein the thin film transistor of each pixel has a gate terminal connected to an associated select conductor to which gate voltages can be applied to control the supply of data voltages to the respective pixel electrode (fig. 1, gate of T2 connected to row conductor 150), and wherein each of said bodies electrically connects the associated pixel electrode to the associated select conductor in response to touch-input to the pixel (fig. 3, col. 6, line 2-3, first circuit element is gate of TFT, see also col. 5, line 54, second circuit element can be pixel electrode connection).

Regarding claim 6, this claim is rejected under the same rationale as claim 1.

Regarding claim 7, this claim is rejected under the same rationale as claim 2.

Regarding claim 8, this claim is rejected under the same rationale as claim 3.

Regarding claim 9, Young discloses a touch-input responsive pixel according to claim 6, wherein said body comprises a pressure-sensitive element having an electrical resistance which changes in response to applied pressure (fig. 5, col. 7, line 7-9 and line 17-18, resistive material 422).

Regarding claim 11, Young discloses a touch-input responsive pixel according to claim 6, wherein at least part of said body overlies and directly contacts said pixel electrode (fig. 8, col. 7, line 46-50).

Regarding claim 12, Young discloses a touch-input responsive pixel according to claim 7, wherein said body comprises a conducting material (col. 1, line 58-60) and is disposed between the pixel electrode and said second electrode (see fig. 5, conductive barrier material is between pixel electrode 23 and common electrode 423).

5. Claims 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Bergquist (US 7,184,009).

Regarding claim 13, Bergquist discloses a method of sensing touch-input to an active matrix display device comprising a plurality of pixels each comprising a pixel electrode (figs. 1 and 2, col. 2, line 12-23) the method comprising the steps of: supplying data voltages to said pixel electrodes via associated data conductors during

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respective address periods (col. 5, line 63-64, also col. 6, line 25-37 describing "display mode") and, measuring a signal on each of said data conductors during respective sensing periods to detect touch-input to the display (col. 6, line 5-7, also col. 6, line 48-58 describing "sensing mode").

Regarding claim 14, Bergquist discloses a method according to claim 13, wherein said pixels are arranged in a row and column array (fig. 4, col. 4, line 62-67) and are selected one row at a time during respective row periods to allow data voltages on the data conductors to be applied to the associated pixel electrodes on the selected row (same rationale as claim 13, see also col. 6, line 43-44), and wherein each row period comprises an address period and a sensing period (col. 7, line 5-12, ratio of display frame to sensing frame can be adjusted).

Regarding claim 15, Bergquist discloses a method according to claim 14, wherein each sensing period follows an address period (col. 7, line 6-7, sensing frame follows display frame).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 5, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of Bergquist.

Regarding claims 4 and 5, Young fails to disclose driver circuitry connected to each data conductor, said circuitry being arranged to operate in an addressing mode for supplying data voltages to associated pixels during respective address periods and a sensing mode for detecting touch-input to associated pixels during respective sensing periods; wherein said driver circuitry comprises a respective buffer circuit connected to each data conductor, each buffer circuit including an analogue to digital converter serving to measure the current through the respective data conductor during said sensing period.

Bergquist teaches driver circuitry connected to each data conductor (fig. 4, column driver 108 and row driver 110), said circuitry being arranged to operate in an addressing mode for supplying data voltages to associated pixels during respective address periods and a sensing mode for detecting touch-input to associated pixels during respective sensing periods (same rationale as claim 13); wherein said driver circuitry comprises a respective buffer circuit connected to each data conductor (fig. 6, see also col. 9, line 19-25), each buffer circuit including an analogue to digital converter (fig. 6, ADC 134) serving to measure the current through the respective data conductor during said sensing period (col. 9, line 27-37, also fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the active matrix display of Young and the

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display and sensing circuit of Bergquist since such a modification provides touch (optical) input "in combination with a flat-panel display without a significant increase in size and/or weight and/or cost" (col. 4, line 8-10).

Regarding claim 10, Young fails to disclose wherein said body comprises a photoconductive element having an electrical resistance which changes in response to light of a predetermined wavelength incident thereon.

Bergquist teaches wherein said body comprises a photoconductive element having an electrical resistance which changes in response to light of a predetermined wavelength incident thereon (col. 4, line 19-20, "optical sensors and pixel circuits are integrated on the same substrate", see also col. 9, line 15-16, photodetectors or phototransistors can be used in sensor array).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the active matrix display of Young with the optical sensors of Bergquist since such a modification provides optical input which reduces the size, cost, and weight of devices, and also provides high resolution (col. 4, line 22-24).

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergquist in view of Bird (US 5,386,543).

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Regarding claim 16, Bergquist fails to disclose wherein said measuring step comprises integrating the current on each of said data conductors for the duration of said respective sensing period.

Bird teaches wherein said measuring step comprises integrating the current on each of said data conductors (fig. 3, also col. 6, line 47-54, and col. 6, line 64-67, the current is integrated) for the duration of said respective sensing period (col. 7, line 29-32, amplifier circuit determines state of the sensing element during the read operation).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the display device and circuit of Bergquist with the circuitry of Bird since such a modification provides simplified array driving circuitry that consumes less power (col. 2, line 51-56).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH CRAWLEY whose telephone number is (571)270-7616. The examiner can normally be reached on M-F, 7:30-5:00 EST, alternate Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on (571)272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Derris H Banks/
Supervisory Patent Examiner, Art
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